

Application No.: 10/072,339

Docket No.: TKHR5060-D-R

REMARKS**Present Status of the Application**

The drawings are objected under 37 CFR 1.83(a). The Office Action rejected presently pending claims 8-14. Specifically, the Office Action rejected claims 8-14 under 35 U.S.C. 103(a), as being unpatentable over Chang et al. (U. S. Patent 6,069,063) in view of Chao et al. (U.S. Patent 6,177,327). Claims 8-14 remain pending in the present application, and reconsideration of those claims is respectfully requested.

Discussion of drawing objections

The Office Action objects to drawing with respect to claim 8. Applicant respectfully disagrees. The active region 204 is shown in FIG. 2A. Following FIG. 2A-2G, FIG. 2G shows the isolation region 202, the lightly doped polysilicon layer 206b, the diffusion barrier layer 208b, and the spacer 216.

Discussion of Office Action Rejections

The Office Action rejected claims 8-4 under 35 U.S.C. 103(a), as being unpatentable over Chang et al. in view of Chao et al.. Applicant respectfully traverses the rejections for at least the reasons set forth below.

Independent claim 8 recites the features as follows:

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8. A high resistivity thin film resistor structure comprising:
a substrate having an isolation region and an active region;
a *patterned*, lightly doped polysilicon layer located on and in contact with the isolation region;
a *diffusion barrier layer covering all the upper surface of the lightly doped polysilicon layer*; and
a *spacer located on and in contact with the sidewalls of the lightly doped polysilicon layer and the barrier diffusion layer*.

(emphasis added).

In re Chang et al., Chang et al. disclose a process to form polysilicon resistors shielded from hydrogen intrusion. In Fig. 3 of Chang et al., the polysilicon layer 23 is oxidized to form a silicon dioxide layer 24 overlying the polysilicon layer 23 (column 3, lines 18-22 and Fig. 3). The silicon dioxide layer 24 is not equivalent or similar to the diffusion barrier layer (208b) of the present invention. The diffusion barrier layer 208b of the present invention (page 6, lines 1-5) can prevent dopants from diffusing out of the polysilicon, and the diffusion barrier layer 208b is a part of the claimed resistor structure.

As disclosed by Chang et al. in Fig. 6, the layer 26 combined with the silicon oxide layer 24, serving as a sacrificial layer, is removed. In Fig. 7, the resistor 30 does not disclose the diffusion barrier layer and the spacer of the present invention. *The silicon oxide layer 24 in Fig. 3 is clearly not the diffusion barrier layer of the present invention.*

In re Chao et al. (Fig. 1), the Office Action refers to Chao et al. to provide the missing spacer in Chang et al.. The spacer 206a only covers the sidewall of the lower capacitor electrode

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204. *However, the spacer 216 of the present invention also covers the diffusion barrier layer 208b.* It is believed that the spacer of the Chao et al. does not disclose the equivalent spacer of the present invention.

Also and, the dielectric layer 208 of Chao et al. serves as the capacitive dielectric layer but not for the diffusion barrier layer of the present invention. Chao et al. still fail to supply the missing diffusion barrier layer in Chang et al. with respect to the present invention.

Furthermore, from the other point of view, Chao et al. is non-analogous to the present invention and the Chang et al.. Chao et al. disclose a capacitor 216, including the capacitor electrode 204. The capacitor electrode 204 should have a good conductivity and is not expected to produce the desired resistance to serve as a resistor. Therefore, it is believed that the combination of Chang et al. with Chao et al. is improper.

For at least the foregoing reasons, Applicant respectfully submits that independent claim 8 patently defines over the prior art references, and should be allowed. For at least the same reason, dependent claims 9-14 also patently define over the prior art references as well.

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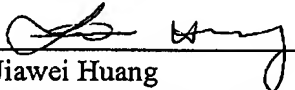
CONCLUSION

For at least the foregoing reasons, it is believed that the pending claims 8-14 are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

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